



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/791,088	03/02/2004	Michael Diesler	2002P18158US	2926

7590 12/05/2005

SIEMENS CORPORATION  
INTELLECTUAL PROPERTY DEPT.  
170 WOOD AVENUE SOUTH  
ISELIN, NJ 08830

EXAMINER

EDGAR, RICHARD A

ART UNIT	PAPER NUMBER
----------	--------------

3745

DATE MAILED: 12/05/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

e

**Office Action Summary**

Application No.

10/791,088

Applicant(s)

DIESLER ET AL.

Examiner

Richard Edgar

Art Unit

3745

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on an amendment filed on 15 November 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-9 and 11-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9 and 11-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

### ***Response to Arguments***

Applicant's arguments filed 15 November 2005 have been fully considered but they are not persuasive. The instant Office action contains at least one new grounds of rejection, based on a different interpretation of the Warren reference (U.S. Patent No. 2,552,239). The arguments still relevant to the applied reference are addressed below.

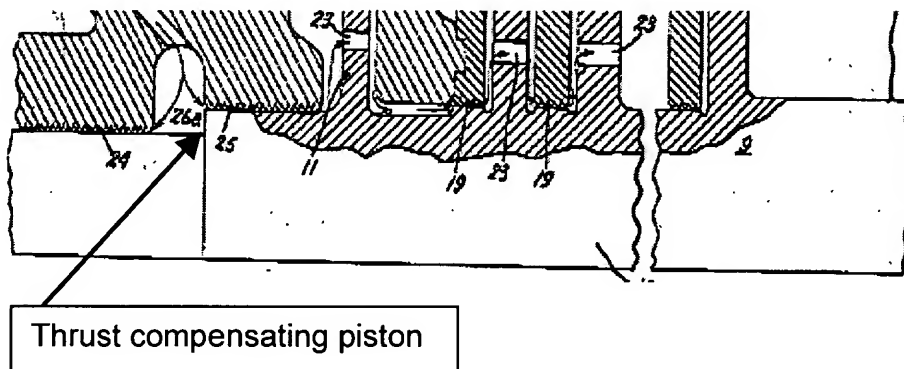
Regarding claims 1 and 2-6, Applicants have argued since U.S. Patent No. 2,552,239 (Warren) recites that "the temperature of the coolant should preferably be at least 150° (65.5° C) below that of the motive fluid", the added limitation of cooling the flow medium "by no more than 60° C" is not taught nor suggested by Warren.

Applicants have misunderstood the teachings of Warren. Warren prefers that when the operating temperature of the motive fluid is over 800° F, the coolant should be at least 150° F below the motive fluid. This does not mean that the fluid will be cooled by 150° F as is assumed by Applicants. The temperature of the fluid that has been cooled by the coolant is determined by many variables as one having ordinary skill in heat transfer can appreciate. As shown by Applicants' original disclosure, the temperature of the coolant in one embodiment is 330° C whereas the motive fluid temperature is 565° C (see paragraph 0020), rendering a temperature of the coolant about 235° C below that of the motive fluid. Since Warren teaches a coolant being at least 150° F cooler than the motive fluid when the latter is over 800° F, the actual value that the motive fluid has been cooled cannot be easily quantified without knowing many

Art Unit: 3745

variables about the fluids and the heat exchanger materials, all that affect the heat transfer.

Applicant next argues that Warren does not teach a thrust compensating piston. As seen in the annotated Figure below, the thrust-compensating piston is defined by the rotor shaft change in thickness.



Regarding Applicants' final argument, the 10% bleed portion is merely a heat transfer design choice chosen based on the desired cooling of the inflow. Noted is Applicants' failure to define the newly added limitation in terms of a volume or mass percentage.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 11-14 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The original specification does not quantify a portion of the flow medium adapted to pass from the live-feed line to a branch line.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 7-9 are rejected under 35 U.S.C. 102(b) as being anticipated by United States Patent No. 2,552,239 (Warren hereinafter).

Warren discloses in Figs. 1 and 2, a turbo machine comprising: a live steam feed line 30 through which a flow medium flows and leading to a live steam inflow region 6, the live steam feed line having a branch with which part of the flow medium is passed via a line 37 to a heat exchanger 38; an exhaust steam region 33; and a feed line 39 arranged downstream of the heat exchanger 38 leading into an inflow region 26a having a thrust compensating piston (see rotor shaft step in Fig. 1) of the turbo machine, wherein the entire volume of exhaust steam flows through the heat exchanger 38.

The heat exchanger 38 is arranged in the exhaust steam region 33 of the turbo machine.

The live steam feed line 30 has a shut-off valve 31 located upstream of the branch.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over United States Patent No. 2,552,239 (Warren hereinafter).

Warren discloses a method for cooling thermally stressed regions in a turbo machine, comprising: flowing a flow medium through the turbomachine 28 and exiting the flow medium in an exhaust steam region 33 during operation of the turbomachine, flowing a portion of the flow medium from a live steam feed line 30 to a heat exchanger 38; cooling the flow medium by the heat exchanger 38 before the flow medium enters the turbo machine 28; flowing the cooled flow medium into the turbomachine via an inflow region 26a; and cooling the thermally stressed regions that are located in the inflow region 26a by the flow medium that has been cooled by the heat exchanger.

Art Unit: 3745

The heat exchanger 38 is located in the exhaust steam region of the turbomachine 28.

The portion of the flow medium that enters the heat exchanger 38 is removed downstream of a shut off valve 31 located in the live steam feed line 30.

The end of the rotor 10 adjacent the inflow region 26a defines a thrust-compensating piston.

Warren does not disclose that the heat transfer between the coolant and the motive fluid results in a temperature difference between 10° C and 60° C of the motive fluid.

By using a coolant at 150° F below 800° F as taught by Warren, the fluid would be cooled by a value not more than 150° F. By using a coolant more than 150° F below 800° F, the fluid would be cooled by a value greater than if the coolant was at 150° F below 800° F. Applicant has not disclosed that the 10° C and 60° C range solves any stated problem or is for any particular purpose. Moreover, it appears that the heat transfer teachings of Warren, or applicant's invention, would perform equally well with the coolant temperature significantly lower than the motive fluid temperature.

Accordingly, it would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made to have modified Warren such that the motive fluid is cooled by 10° C to 60° C because such a modification would have been considered a mere design consideration which fails to patentably distinguish over Warren.

Claims 11-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over United States Patent No. 2,552,239 (Warren hereinafter).

Warren discloses in Figs. 1 and 2, a turbo machine having selectively cooled internal components, comprising: a live feed flow line 30 that flows a medium through a turbo machine 28 and exits into an exhaust region 33; a branch line 37 to extend from the live feed line 30 adapted to pass a portion of the flow medium to a heat exchanger 38; and a feed line 39 arranged downstream of the heat exchanger 38 leading into an inflow region 26a of the turbomachine 28.

The heat exchanger 38 is located in the exhaust steam region 33 of the turbo machine.

The live steam feed line 30 has a shut-off valve 31 located upstream of the branch.

Warren does not state that greater than 10% of the flow from the feed line 30 is passed into the branch line 37.

Applicant has not disclosed that greater than 10% of the flow from the feed line is passed into the branch line solves any stated problem or is for any particular purpose. Moreover, it appears that the turbines of Warren, or applicants' invention, would perform equally well with any amount of flow being branched from the feed line.

Accordingly, it would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made to have modified Warren such that greater than 10% of the flow from the feed line is passed into the branch line because such a



Art Unit: 3745

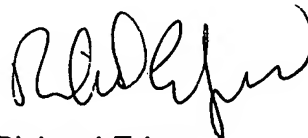
modification would have been considered a mere design consideration which fails to patentably distinguish over Warren.

***Contact Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Richard Edgar whose telephone number is (571) 272-4816. The examiner can normally be reached on Mon.-Thur. and alternate Fri., 7 am- 5 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Look can be reached on (571) 272-4820. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Richard Edgar  
Examiner  
Art Unit 3745

RE